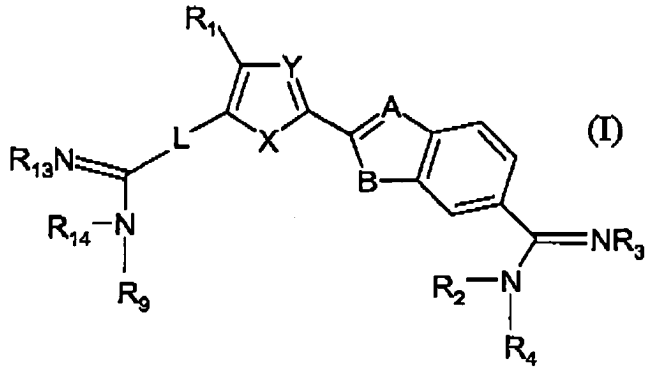
Application Serial No.: 10/653,677

AMENDMENTS

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A compound of Formula I:



(I)

wherein:

X is selected from the group consisting of O, and S, ~~and NH~~;

Y is CH ~~or N~~;

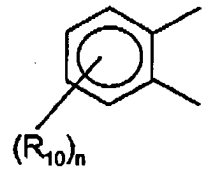
A is ~~CH or~~ N;

B is selected from the group consisting of ~~NH,~~ and O ~~or S~~, provided that when X is O and A is N, B is not NH;

R_1 is selected from the group consisting of H, loweralkyl, halogen, oxyalkyl, oxyaryl, and oxyarylakyl;

R_2 and R_9 are each independently selected from the group consisting of H, ~~H_2,~~ hydroxy, lower alkyl, cycloalkyl, aryl, alkylaryl, alkoxyalkyl, hydroxycycloalkyl, alkoxycycloalkoxy, hydroxyalkyl, aminoalkyl and alkylaminoalkyl; and

R_3, R_4, R_{13} and R_{14} are each independently selected from the group consisting of H, lower alkyl, alkoxyalkyl, cycloalkyl, aryl, alkylaryl, hydroxyalkyl, aminoalkyl, and alkylaminoalkyl, or R_3 and R_4 together or R_{13} and R_{14} together represent a C_2 to C_{10} alkyl, hydroxyalkyl, or alkylene, or R_3 and R_4 together or R_{13} and R_{14} together are:



wherein n is a number from 1 to 3, and R_{10} is H or -$CONHR_{11}NR_{15}R_{16}$, wherein R_{11} is lower alkyl and R_{15} and R_{16} are each independently selected from the group consisting of H and lower alkyl;

L is ~~selected from the group consisting of~~:

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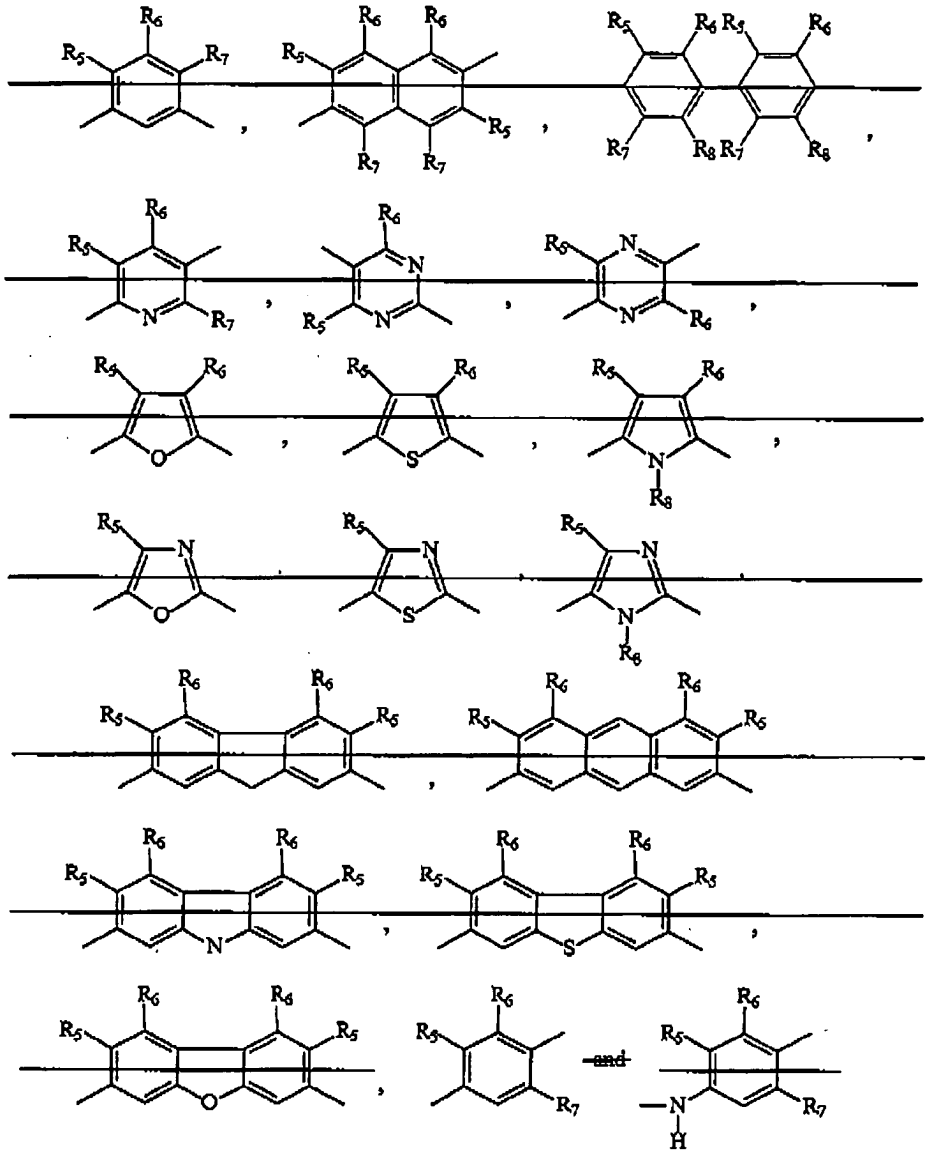

wherein R_5, R_6, R_7, and R_8 are each individually selected from the group consisting of H, alkyl, halo, aryl, arylalkyl, aminoalkyl, aminoaryl, oxoalkyl, oxoaryl, and oxoarylalkyl; and wherein said compound of Formula I binds the minor groove of DNA as a dimer.

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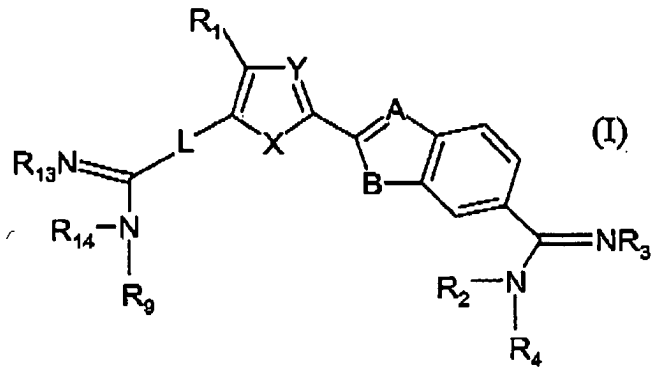
2. (Canceled)

3. (Canceled)

4. (Currently amended) A method of binding mixed sequence DNA comprising contacting a sample DNA with a compound of Formula (I):



(I)

wherein:

X is selected from the group consisting of O, and S, ~~and NH~~;

Y is CH ~~or N~~;

A is ~~CH or N~~;

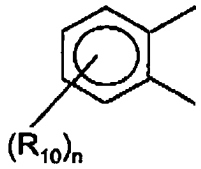
B is selected from the group consisting of NH, and O ~~or S~~, provided that when X is O and A is N, B is not NH;

R_1 is selected from the group consisting of H, loweralkyl, halogen, oxyalkyl, oxyaryl, and oxyarylakyl;

R_2 and R_9 are each independently selected from the group consisting of H, ~~H_2~~, hydroxy, lower alkyl, cycloalkyl, aryl, alkylaryl, alkoxyalkyl, hydroxycycloalkyl, alkoxycycloalkoxy, hydroxyalkyl, aminoalkyl and alkylaminoalkyl; and

R_3, R_4, R_{13} and R_{14} are each independently selected from the group consisting of H, lower alkyl, alkoxyalkyl, cycloalkyl, aryl, alkylaryl, hydroxyalkyl, aminoalkyl, and

alkylaminoalkyl, or R_3 and R_4 together or R_{13} and R_{14} together represent a C_2 to C_{10} alkyl, hydroxyalkyl, or alkylene, or R_3 and R_4 together or R_{13} and R_{14} together are:



wherein n is a number from 1 to 3, and R_{10} is H or $-CONHR_{11}NR_{15}R_{16}$, wherein R_{11} is lower alkyl and R_{15} and R_{16} are each independently selected from the group consisting of H and lower alkyl;

L is ~~selected from the group consisting of~~:

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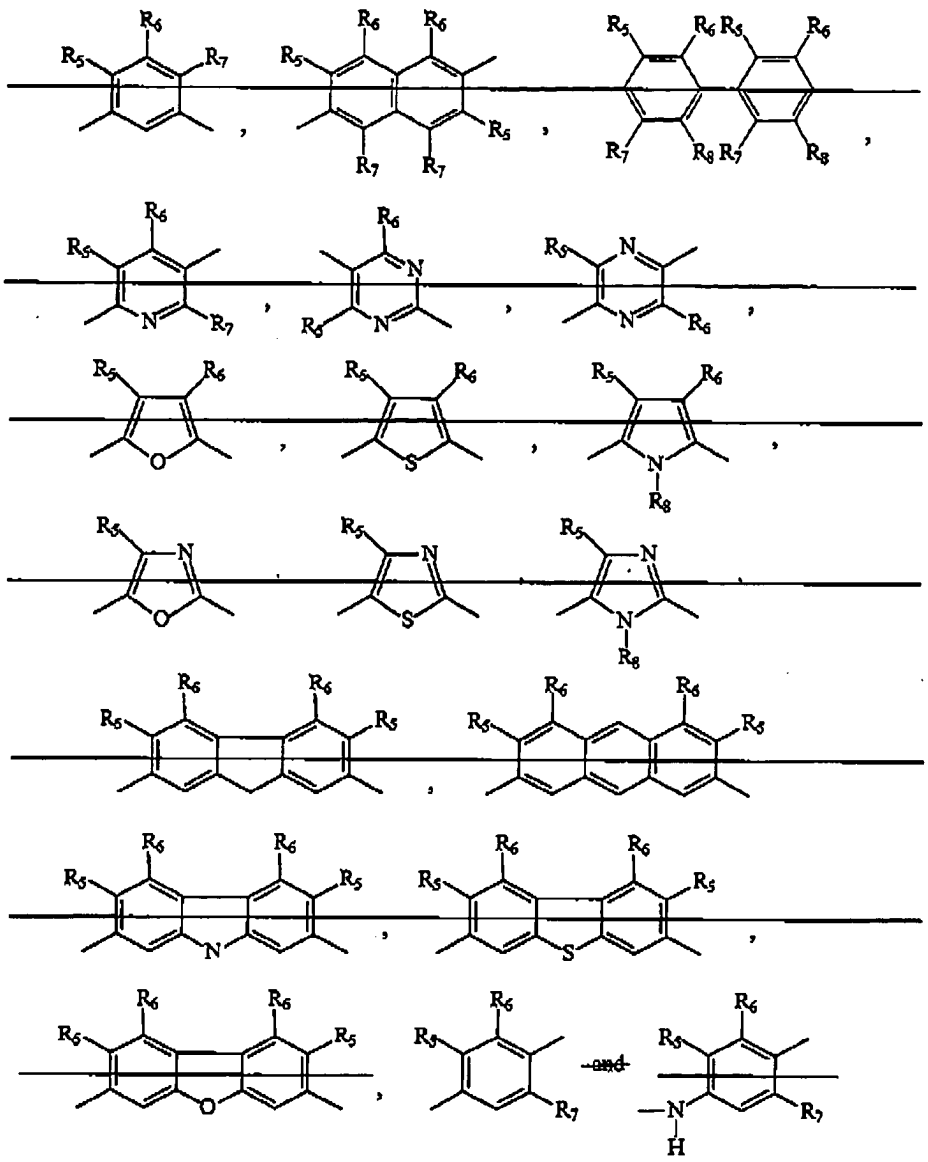
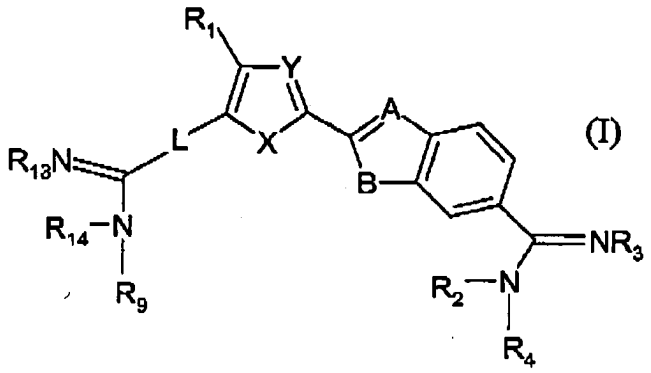


wherein R_5, R_6, R_7, and R_8 are each individually selected from the group consisting of H, alkyl, halo, aryl, arylalkyl, aminoalkyl, aminoaryl, oxoalkyl, oxoaryl, and oxoarylalkyl; wherein said compound of Formula I binds the minor groove of DNA as a dimer.

5. (Canceled)

6. (Canceled)

7. (Currently amended) A method of detecting mixed sequence DNA comprising contacting a sample of DNA with a fluorescent compound of Formula (I):



(I)

wherein:

X is selected from the group consisting of O, and S, ~~and NH~~;

Y is CH ~~or N~~;

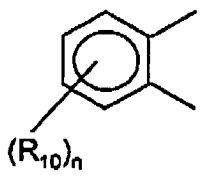
A is ~~CH or~~ N;

B is selected from the group consisting of ~~NH,~~ and O ~~or S~~, provided that when X is O and A is N, B is not NH;

R_1 is selected from the group consisting of H, loweralkyl, halogen, oxyalkyl, oxyaryl, and oxyarylakyl;

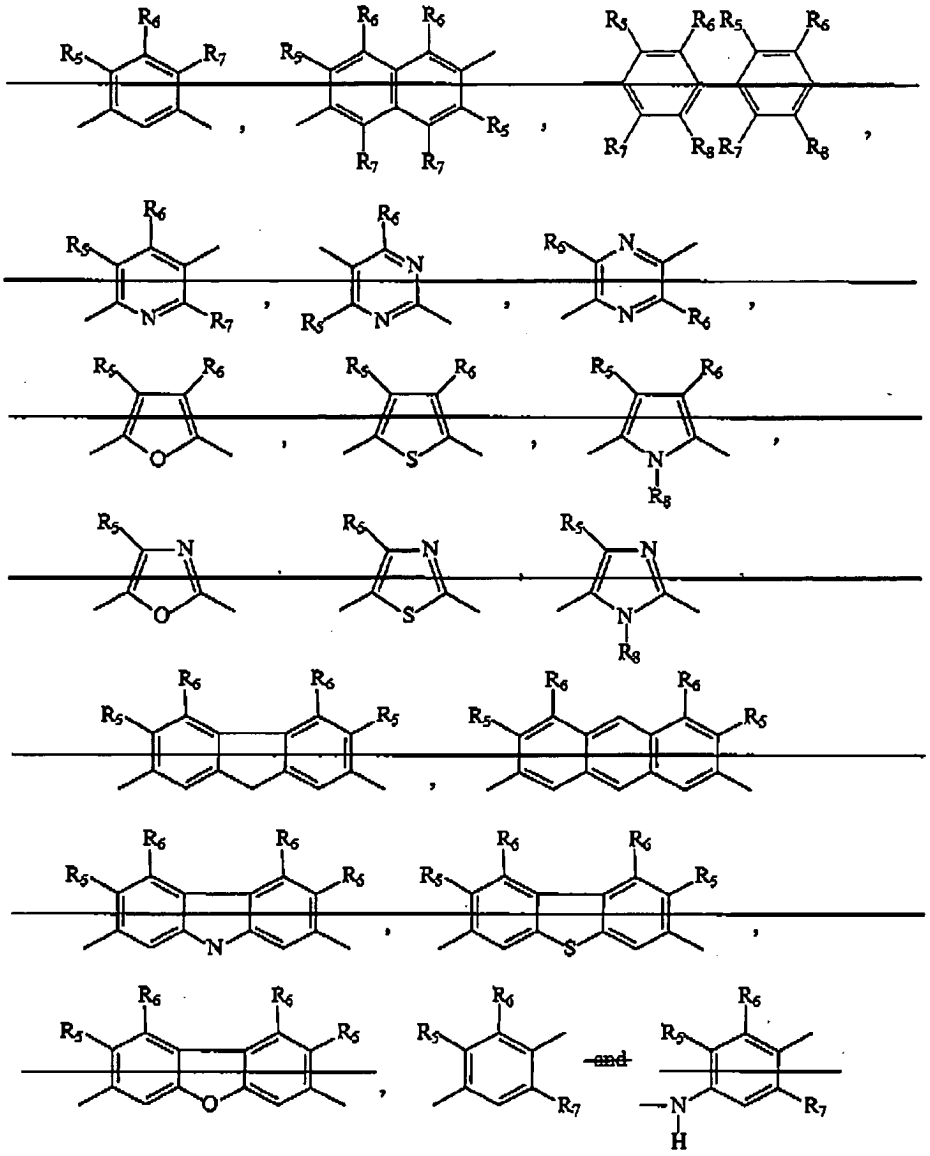
R_2 and R_9 are each independently selected from the group consisting of H, ~~H_2,~~ hydroxy, lower alkyl, cycloalkyl, aryl, alkylaryl, alkoxyalkyl, hydroxycycloalkyl, alkoxycycloalkoxy, hydroxyalkyl, aminoalkyl and alkylaminoalkyl; and

R_3, R_4, R_{13} and R_{14} are each independently selected from the group consisting of H, lower alkyl, alkoxyalkyl, cycloalkyl, aryl, alkylaryl, hydroxyalkyl, aminoalkyl, and alkylaminoalkyl, or R_3 and R_4 together or R_{13} and R_{14} together represent a C_2 to C_{10} alkyl, hydroxyalkyl, or alkylene, or R_3 and R_4 together or R_{13} and R_{14} together are:



wherein n is a number from 1 to 3, and R_{10} is H or -$CONHR_{11}NR_{15}R_{16}$, wherein R_{11} is lower alkyl and R_{15} and R_{16} are each independently selected from the group consisting of H and lower alkyl;

L ~~is selected from the group consisting of~~:



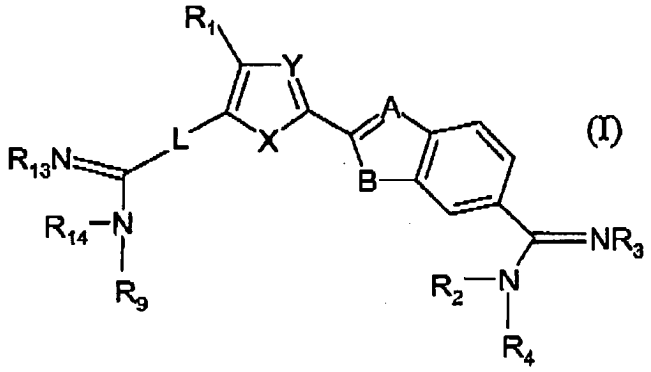
wherein R_5, R_6, R_7, and R_8 are each individually selected from the group consisting of H, alkyl, halo, aryl, arylalkyl, aminoalkyl, aminoaryl, oxoalkyl, oxoaryl, and oxoarylalkyl; and wherein said compound of Formula I binds the minor groove of DNA as a dimer;

and then observing fluorescence in the sample, the observation of fluorescence indicating the compound of Formula I has bound to a sequence of DNA.

8. (Canceled)

9. (Canceled)

10. (Currently amended) A pharmaceutical formulation comprising a compound of Formula I:



(I)

wherein:

X is selected from the group consisting of O~~,~~ and S~~, and NH~~;

Y is CH ~~or N~~;

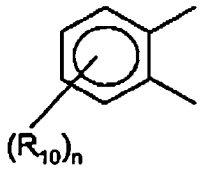
A is ~~CH or~~ N;

B is selected from the group consisting of NH~~,~~ and O ~~or S~~, provided that when X is O and A is N, B is not NH;

R_1 is selected from the group consisting of H, loweralkyl, halogen, oxyalkyl, oxyaryl, and oxyarylakyl;

R_2 and R_9 are each independently selected from the group consisting of H, ~~H_2,~~ hydroxy, lower alkyl, cycloalkyl, aryl, alkylaryl, alkoxyalkyl, hydroxycycloalkyl, alkoxycycloalkoxy, hydroxyalkyl, aminoalkyl and alkylaminoalkyl; and

R_3, R_4, R_{13} and R_{14} are each independently selected from the group consisting of H, lower alkyl, alkoxyalkyl, cycloalkyl, aryl, alkylaryl, hydroxyalkyl, aminoalkyl, and alkylaminoalkyl, or R_3 and R_4 together or R_{13} and R_{14} together represent a C_2 to C_{10} alkyl, hydroxyalkyl, or alkylene, or R_3 and R_4 together or R_{13} and R_{14} together are:



wherein n is a number from 1 to 3, and R_{10} is H or -$CONHR_{11}NR_{15}R_{16}$, wherein R_{11} is lower alkyl and R_{15} and R_{16} are each independently selected from the group consisting of H and lower alkyl;

L is ~~selected from the group consisting of~~:

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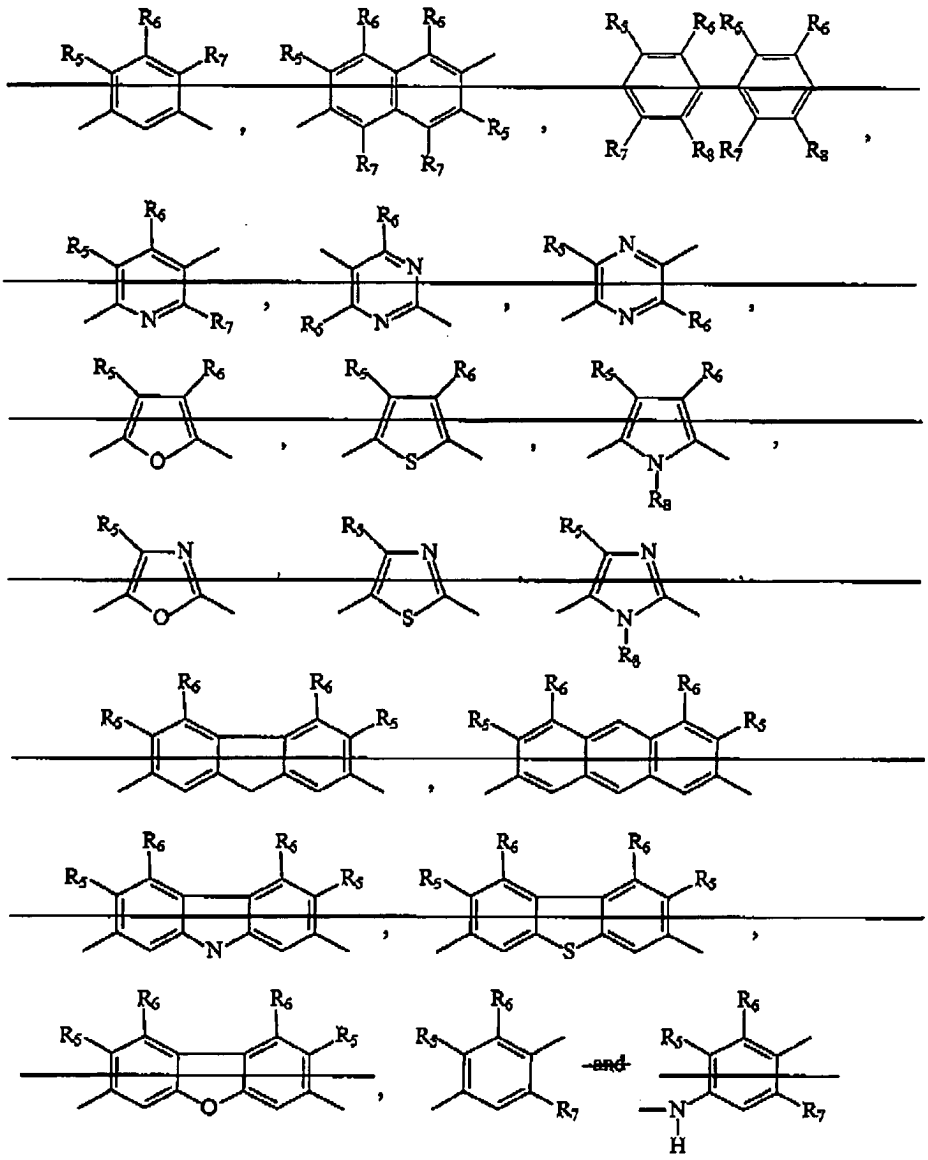

wherein R_5, R_6, R_7, and R_8 are each individually selected from the group consisting of H, alkyl, halo, aryl, arylalkyl, aminoalkyl, aminoaryl, oxoalkyl, oxoaryl, and oxoarylalkyl;

in a pharmaceutically acceptable carrier.

11. (Canceled)

12. (Canceled)